

3.6 DEFINITIONS

a. Meaning of Terms

Words used in the singular form in this subpart shall be considered to imply the plural and vice versa, as appropriate.

b. Definition of Terms

1. Absolute Value. The absolute value of a number is the magnitude of that number without considering the positive or negative sign.
2. Accurate. A piece of equipment is "accurate" when its performance or value -- that is, its indications, its deliveries, its recorded representation, or its capacity or actual value, etc., as determined by tests made with suitable standards -- conforms to the standard within the applicable tolerances and other performance requirements. Equipment that fails to conform is "inaccurate." (See also correct.)
3. Analog Type. A system of indication or recording in which values are presented as a series of graduations in combination with an indicator, or in which the most sensitive element of an indicating system moves continuously during the operation of the scale.
4. Anti-friction Point. A sharp slight projection formed on the knife-edge line of a pivot or inserted in or attached to a lever for contacting a thrust plate.
5. Applied Load. The force of weight on a load receiving element of a scale beyond that required to maintain the zero-load balance. Sometimes also called "live load."
6. Approach Rail. One of the rails of track approaching a scale.
7. Approval Label. A label indicating official approval of a scale. (See Security Seal.)
8. Automatic Bulk Weighing System. A weighing system adapted to the automatic weighing of bulk commodities in successive drafts of predetermined

amounts, automatically recording the no-load and loaded weight values and accumulating the net weight of each draft.

9. Automatic Hopper Scale. One adapted to the automatic weighing of a bulk commodity in successive drafts of predetermined amounts. (This is not necessarily an "Automatic-indicating scale" defined below.)
10. Automatic-Indicating Scale. One on which the weights of applied loads of various magnitudes are automatically indicated throughout all or a portion of the weighing range of the scale. (A scale that automatically weighs out commodity in predetermined drafts, such as an automatic hopper scale, and the like, is not an automatic-indicating scale).
11. Automatic Zero-setting Mechanism. Automatic means provided to maintain zero balance indication without the intervention of an operator, also known as automatic zero-maintenance (AZM).
12. Automatic Zero Reset. A means or circuit to return an indicator to zero from any reading within the nominal capacity of the scale.
13. Auxiliary Indicator. Any indicator other than the master weight totalizer that indicates the weight of material determined by the scale.
14. Avoirdupois Weight. A unit of weight based on the pound of 16 ounces (7000 grains) commonly used in the United States for official weighing of all commodities, except precious stones, precious metals, and drugs.
15. Balance Indicator. A combination of elements, one or both of which will oscillate with respect to the other, for indicating the balance condition of a nonautomatic-indicating scale. The combination may consist of two indicating edges, lines, or points, or a single edge, line, or point and a graduated scale.
16. Balance, Zero-load. See zero-load balance.
17. Balancing Mechanism. A mechanism (including a balance ball) that is designed for adjusting a scale to an accurate zero-load balance condition.
18. Basic Tolerances. Basic tolerances are those tolerances on underregistration and on overregistration, or in excess and in deficiency, that are established for a particular scale under all normal tests, whether maintenance or acceptance. Basic tolerances include minimum tolerance values when these are specified. Special tolerances, identified as such and pertaining to special tests, are not basic tolerances.

19. Beam. See weighbeam.
20. Beam Scale. One on which the weights of loads of various magnitudes are indicated solely by means of one or more weighbeam bars either alone or in combination with counterpoise weights.
21. Bench Scale. (See counter scale).
22. Binary Submultiples. Fractional parts obtained by successively dividing by the number 2. Thus, one-half, one-fourth, one-eighth, one-sixteenth, and so on, are binary submultiples.
23. Certificate of Conformance. A document issued by the National Institute of Standards and Technology based on testing by a Participating Laboratory, said document constituting evidence of conformance of a type with the requirements of National Institute of Standards and Technology Handbooks 44, 105-1. (See also Participating Laboratory.)
24. Certified Capacity. The maximum weight limit that has been approved by the Service for a scale for weighing under the Act. It is posted on the approved label for inspected machinery or scale test forms.
25. Checkweighing Scale. One used to verify predetermined weight within prescribed limits.
26. Clear Interval Between Graduations. The distance between adjacent edges of successive graduations in a series of graduations. If the graduations are "staggered," the interval shall be measured, if necessary, between a graduation and an extension of the adjacent graduation.
27. Concentrated Load Capacity. A capacity rating of a vehicle scale, specified by the manufacturer, defining the maximum load concentration for which the weighbridge is designed. This capacity rating is for both test and use.

28. Correct. A piece of equipment is "correct" when, in addition to being accurate, it meets all applicable specifications requirements. Equipment that fails

to meet any of the requirements for correct equipment is "incorrect." (See also accurate.)

29. Counterbalance Weight. An adjusted, removable (usually) slotted weight, intended to counterpoise an applied load of designed weight value. Sometimes also colloquially called "counterweight". Also, one intended for application near the butt of a weighbeam for zero-load balancing purposes.
30. Counterpoise Weight. A slotted or "hanger" weight intended for application near the tip of the weighbeam of a scale having a multiple greater than 1.
31. Creep. The change in load cell output occurring with time while under load and with all environmental conditions and other variables remaining constant.
32. Creep Recovery. The change in no-load output occurring with time after a removal of a load which had been applied for a specific period of time.
33. Damping Device. A device for arresting an oscillation by progressively diminishing its amplitude.
34. Dead Rail. Either rail of the independent track provided over a railway track scale for the movement of locomotives and cars not to be weighed.
35. Decreasing-Load Test. A test for automatic-indicating scales only, wherein the performance of the scale is tested when the load is being reduced.
36. Deficiency. See excess and deficiency.
37. Digital Type. A system of indication or recording of the selector type or one that advances intermittently in which all values are presented digitally, or in numbers. In a digital indicating or recording element, or in digital representation, there are no graduations.
38. Discrimination (of an Automatic-Indicating Scale). The value of the test load on the load-receiving element of the scale that will produce a specified minimum change of the indicated or recorded value on the scale.

39. Discrimination Test. A test conducted to determine sensitivity on all digital automatic-indicating scales with the weighing device in equilibrium at zero-load and under controlled conditions in which environmental factors are reduced to the extent that they will not affect the results obtained.

40. Drift. A random change in output under constant load conditions.
41. Electromagnetic Interference (EMI). External electrical disturbances which propagate into electronic and electrical circuits and cause deviations from the normally expected performance. The frequency range of the disturbance covers the entire electromagnetic spectrum.
42. Electronic Scale. Any scale in which the restoring force is a transducer which converts force into an electrical signal proportional to weight and presents the information in digital or analog form.
43. Error. The algebraic difference between the indicated and true value of the load being measured.
44. Equal-Arm Scale. A scale having only a single lever with equal arms (that is, with a multiple of one), equipped with two similar or dissimilar load-receiving elements (pan, plate, platter, scoop, or the like), one intended to receive material being weighed and the other intended to receive weights. There may or may not be a weighbeam ("side bar").
45. Excess and Deficiency. When an instrument or device is of such a character that it has a value of its own that can be determined, its error is said to be "in excess" or "in deficiency," depending upon whether its actual value is, respectively, greater or less than its nominal value. Examples of instruments having errors "in excess" are: A linear measure that is too long, a liquid measure that is too large, and a weight that is "heavy." Examples of instruments having errors "in deficiency" are: A lubricating-oil bottle that is too small, a vehicle-tank compartment that is too small, and a weight that is "light."
46. Floating Rig. A waterborne grain handling and weighing system used to remove and weigh grain from barges directly to other waterborne carriers.
47. Fractional Bar. A weighbeam bar of relatively small capacity, for obtaining indications intermediate between notches or graduations on a main or tare bar.

48. Graduated Interval. The distance from the center of one graduation to the center of the next graduation of a series of graduations. (See also value of minimum graduated interval.)
49. Graduation. A defining line, or one of the lines defining the subdivisions of a graduated series. The term includes such special forms as raised or indented or scored reference "lines" and special characters such as dots. (See also main graduation, subordinate graduation.)
50. Grain Handling System. The physical arrangement including equipment, devices, and structures whereby grain is weighed with one or more scales and delivered or conveyed to a carrier or container, or unloaded from a carrier or container and delivered to one or more scales to be weighed.
51. Grain Hopper Scale. One adapted to the weighing of individual loads of varying amounts of grain.
52. Hysteresis. The maximum difference between load cell output readings for the same applied load; one reading obtained by increasing the load from zero and the other by decreasing the load from rated output.
53. Grain-Test Scale. A scale adapted to weighing grain samples used in determining moisture content, dockage, weight per unit volume, etc.
54. Hopper Scale. A scale designed for the bulk weighing of commodities whose load-receiving element is a tank, box, or hopper mounted on a weighing element. See also automatic hopper scale and grain hopper scale.
55. Inclinometer. An instrument for indicating the inclination to the horizontal of an axis of a ship.
56. Increasing-Load Test. The normal basic performance test for a scale in which observations are made as increments of test load and are successively added to the load-receiving element of the scale.
57. Increment. The value of the smallest change in value that can be indicated or recorded by a digital scale in normal operation.
58. Index of an Indicator. The particular portion of an indicator that is directly used in making a reading.

59. Indicator, Balance. See balance indicator.
60. Indicating Element. An element incorporated in a scale by means of which its performance relative to quantity is "read" from the scale itself as, for example, an index-and-graduated-scale combination, a weighbeam and poise combination, a digital indicator, and the like. (See also primary indicating or recording element.)
61. Interlock. A mechanism designed to prevent an action or indicate the presence of an occurrence in a scale system or a grain handling system.
62. Interval, Clear, Between Graduations. See clear interval between graduations.
63. Interval, Graduated. See graduated interval.
64. Levertronic Scale. A scale in which the indicating and the recording devices can be activated either manually or electronically and which generally has one load cell mounted in the lever system.
65. List. To lean to one side, e.g., a barge, because grain is being unloaded all from one side and not the other.
66. Live Load. The load to be weighed (see applied load).
67. Load. The weight or force applied to a scale.
68. Load Cell. A device, whether electric, hydraulic, or pneumatic, that produces a signal proportional to the load applied.
69. Load-Receiving Element. That element of a scale that is designed to receive the load to be weighed; for example, platform, deck, rail, hopper, platter, plate, scoop.
70. Main Bar. A principal weighbeam bar, usually of relatively large capacity as compared with other bars of the same weighbeam. (On an automatic-indicating scale equipped with a weighbeam, the main weighbeam bar is frequently called the "capacity" bar.)

71. Main Graduation. A graduation defining the primary or principal subdivisions of a graduated series. (See also graduation.)
72. Maintenance Tolerance. A tolerance for application under test conditions to a scale in service; usually applied to errors "as found." This is also called "users" tolerance.
73. Main-Weighbeam Elements. The combination of a main bar and its fractional bar, or a main bar alone if this has no fractional bar associated with it.
74. Manual Scale. A scale in which the weight-indicating and the weight-recording devices are activated by hand.
75. Manual Zero-setting Mechanism. Nonautomatic means provided to attain a zero balance indication by the direct operation of a control.
76. Metric Weight. A unit system of weight based on the kilogram of 1,000 grams.
77. Minimum Division. The value of the smallest unit that can be indicated or recorded by a digital device in normal operations.
78. Minimum Test Load. The minimum allowable weight used for testing the accuracy of a scale.
79. Minimum Tolerances. Minimum tolerances are the smallest values that can be applied to a scale. Minimum tolerances are determined on the basis of the value of the minimum graduated interval or the nominal or reading capacity of the scale.
80. Motion Detection. The process of sensing a rate of change of applied load to determine when a given weighing system has reached a state of equilibrium.
81. Multiple of a Scale. In general, the multiplying power of the entire system of levers or other basic weighing elements. (On a beam scale, the multiple of the scale is the number of pounds on the load-receiving element that will be counterpoised by 1 pound applied to the tip pivot of the weighbeam.)
82. Multi-Revolution Scale. An automatic-indicating scale having a nominal capacity that is a multiple of the reading-face capacity and that is achieved by more than one complete revolution of the indicator.

83. National Type Evaluation Program. A program of cooperation between the National Institute of Standards and Technology, the National Conference on Weights and Measures, the States, and the private sector for determining, on a uniform basis, conformance of a type with the relevant provisions of:

National Institute of Standards and Technology Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Device;"

National Institute of Standards and Technology Handbook 105-1, "Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures, Specifications and Tolerances for Field Standard Weights (NIST Class F);"

84. No-Load Reference Value. A positive weight value indication with no load in the load-receiving element (hopper) of the scale. (Used with automatic bulk weighing systems and certain single-draft, manually-operated receiving hopper scales installed below grade and used to receive grain.)

85. Nominal. Refers to "intended" or "named" or "stated," as opposed to "actual." For example, the nominal value of something is the value that it is supposed or intended to have, the value that it is claimed or stated to have, or the value by which it is commonly known. Thus, 1-pound weight, 1-gallon measure, 1-yard indication, and 500-pound scale are statements of nominal values; corresponding actual values may differ from these by greater or lesser amounts.

86. Nominal Capacity. The nominal capacity of a scale is (a) the largest weight indication that can be obtained by the use of all of the reading or recording elements in combination, including the amount represented by any removable weights furnished or ordinarily furnished with the scale, but excluding the amount represented by any extra removable weights not ordinarily furnished with the scale, and excluding also the capacity of any auxiliary weighing attachment not contemplated by the original design of the scale, and excluding any fractional bar with a capacity less than $2\frac{1}{2}$ percent of the sum of the capacities of the remaining reading elements, or (b) the capacity marked on the scale by the manufacturer, whichever is less. (See also nominal capacity, hopper scale.)

87. Nominal Capacity, Hopper Scale. The nominal capacity of a hopper scale is the capacity as marked on the scale by the scale manufacturer, or the product of the volume of the hopper in bushels or cubic feet times the maximum weight per bushel or cubic foot, as the case may be, of the commodity normally weighed, whichever is less.

88. Nonretroactive. "Nonretroactive" requirements are enforceable after the effective date for:

- a. scales manufactured within a State after the effective date;
- b. both new and used scales brought into a State after the effective date; and
- c. scales that have been used in noncommercial applications and are then being placed into commercial use after the effective date.

Nonretroactive requirements are not enforceable with respect to scales that are in commercial service in the State as of the effective date or to new equipment in the stock of a manufacturer or a dealer in the State as of the effective date. (H-44, 1994, G-A.6. in part)

89. Nose-iron. A slidable-mounted, manually-adjustable pivot assembly for changing the multiple of a lever.

90. Official Grain Weighing Equipment or Device. Any scale system used in weighing grain under the USGSA.

91. Out-of-Zero Balance. A weight indication or weight representation other than zero when there is no load on the scale load-receiving element.

92. Over-and-Under Indicator. An automatic-indicating element incorporated in or attached to a scale comprising an indicator and a graduated scale with a central or intermediate "zero" graduation and a limited range of weight graduations on either side of the zero graduation, for indicating weights greater than and less than the predetermined values for which other elements of the scale may be set. (A scale having an over-and-under indicator is classed as an automatic-indicating scale.)

93. Overregistration and Underregistration. When an instrument or device is of such a character that it indicates or records values as a result of its operation, its error is said to be in the direction of overregistration or underregistration,

depending upon whether the indications are, respectively, greater or less than they should be. Examples of devices having errors of "overregistration" are: A fabric-measuring device that indicates more than the true length of material passed through it; and a liquid-measuring device that indicates more than the true amount of the liquid delivered by the device. Examples of devices having error of "underregistration" are: A meter that indicates less than the true amount of product that it delivers; and a weighing scale that indicates or records less than the true weight of the applied load.

94. Parallax. The apparent displacement, or apparent difference in height or width, of a graduation or other object with respect to a fixed reference, as viewed from different points.
95. Participating Laboratory. A Federal or a State Measurement Laboratory authorized by the National Institute of Standards and Technology, in accordance with its program for the Certification of Capability of State Measurement Laboratories, to conduct a type evaluation under the National Type Evaluation Program. (FGIS is a Participating Laboratory.)
96. Pendulum. In general, a body suspended from a fixed point so as to swing freely to and fro or in a spatially restricted sense; and with respect to certain types of scales, an element consisting of a mass and a rigid arm connecting the mass to an axis of rotation.
97. Performance Requirements. Performance requirements include all tolerance requirements and, in the case of nonautomatic-indicating scales, sensitivity requirements (SR).
98. Platform Scale. A scale whose load-receiving element is a platform.
99. Poise. A movable weight mounted upon or suspended from a weighbeam bar and used in combination with graduations, and frequently with notches, on the bar to indicate weight values. (A suspended poise is commonly called a "hanging" poise.)
100. Potentiometer. A resistance unit having a variable or sliding contact which is positioned by the rotation or sliding of a shaft.

101. Primary Indicating or Recording Element. The term "primary" is applied to those principal indicating (visual) elements and recording elements that are designed to, or may be, used by the operator in the normal commercial use of a device. (Examples of primary elements are the visual indicators for scales not equipped with ticket printers or other recording elements and both the visual indicators and the ticket printers or other recording elements for scales so equipped.)

Exception. The term "primary" is not applied to an auxiliary element as, for example, the ability to produce a running record of successive weighing operations, this element being supplementary to one that determines individual weights. (See indicating element, recording element.)

102. Radio Frequency Interference (RFI). Radio frequency interference is a type of electrical disturbance that, when introduced into electronic and electrical circuits, may cause deviations from the normally expected performance.

103. Railway Track Scale. A scale especially designed for weighing railway cars.

104. Ranges, Weight. See weight ranges.

105. Rated Scale Capacity. That value representing the weight that can be delivered by the device in 1 hour.

106. Ratio Test. A test to determine the accuracy with which the actual multiple of a scale agrees with its designed multiple. This test is used for scales employing counterpoise weights and is made with standard test weights substituted in all cases for the weights commercially used on the scale. (It is appropriate to use this test for some scales not employing counterpoise weights.)

107. Reading Edge. With respect to certain forms of poises, the edge intended as the index.

108. Reading-Face. That portion of an automatic-indicating scale that gives a visible indication of the quantity weighed or measured. A reading-face may include an indicator and a series of graduations or present values digitally.

109. Reading-Face Capacity. The largest value that may be indicated on the reading-face, exclusive of the application or addition of any supplemental or accessory elements.

110. Recorded Representations. The printed, embossed or other representation that is recorded as a quantity by a weighing or measuring device.

111. Recording Element. An element incorporated in a weighing or measuring device by means of which its performance relative to quantity or money value is permanently recorded on a tape, ticket, card, or the like, in the form of a printed, stamped, punched, or perforated representation.

112. Repeatability. The degree of reproducibility among several independent measurements of the same test load under specified conditions.

113. Retroactive Requirement. "Retroactive" requirements, when used in this Handbook and the National Institute of Standards and Technology Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Device" are enforceable with respect to all equipment. (H-44, 1994, G-A.5.)

114. Scale. (See specific type of scale.)

115. Scale Division, Value of (d). The value of the scale division expressed in units of mass is the smallest subdivision of the scale for analog indication (d) or the difference between two consecutively indicated or printed values for digital indication or printing. (See also verification scale division.)

116. Scale Division, Number of (n). Quotient of the capacity divided by the value of the scale division.

$$n = \frac{\text{Cap}}{d}$$

117. Scale Section. A part of a vehicle scale consisting of two main load supports usually transverse to the direction in which the load is applied.

118. Scale System. A system for weighing grain, including the scale and all parts of the scale, and all equipment and structures that are immediately associated with, related to,

or are an integral part of the system whereby grain is delivered to the scale, is weighed, and is removed from the scale.

119. Seal. See approval label or security seal.
120. Sectional Capacity. The greatest live load which may be divided equally on the load pivots or load cells of a section without inducing stresses in any member in excess of the working stresses allowed for the load cells or levers and materials involved.
121. Section Test. A test in which the test load is applied over individual sections. This test is conducted to disclose the weighing performance of individual sections, since scale capacity test loads are not always available and loads weighed are not always distributed evenly over all main load supports.
122. Security Seal. A lead-and-wire seal, a pressure-sensitive seal sufficiently permanent to indicate its removal, or similar device attached to a weighing or measuring device for protection against or to indicate access to adjustment. (See also approval label.)
123. Selector-Type. Refers to a system of indication or recording in which the mechanism selects, by means of a ratchet-and-paw combination or by other means, one or the other of any two successive values that can be indicated or recorded.
124. Semi-automatic Zero-setting Mechanism. Automatic means provided to attain a direct zero balance indication requiring a single initiation by an operator.
125. Sensitivity (of a Nonautomatic-Indicating Scale). The value of the test load-receiving element of the scale that will produce a specified minimum change in the position of rest of the indicating element or elements of the scale.
126. Sensitivity Requirement (SR). A performance requirement for a nonautomatic-indicating scale; specifically, the minimum change in the position of rest of the indicating element or elements of the scale in response to the increase or decrease, by a specified amount, of the test load on the load-receiving element of the scale.
127. Shift Test. A test intended to disclose the weighing performance of a scale under off-center loading.

128. Span (structural). The distance between adjoining sections of a scale.

129. Specification. A requirement usually dealing with the design, construction, or marking of a weighing or measuring device. Specifications are primarily directed to the manufacturers of devices.

130. Strain-load Test. The test of a scale beginning with the scale under load and applying known test weights to determine accuracy over a portion of the weighing range. The scale errors for a strain-load test are the errors observed for the known test loads only. The tolerances to be applied are based on the known test load used for each error that is determined.

131. Subordinate Graduation. Any graduation other than a main graduation. (See also graduation.)

132. Summation Standard (S). A standard that consists of a conglomerate of smaller standards.

133. Tare Mechanism. A mechanism (including a tare bar) that is designed for determining or balancing out the weight of packaging material, containers, vehicles, or other materials that are not intended to be included in net-weight determinations.

134. Tare-Weighbeam Elements. The combination of a tare bar and its fractional bar, or a tare bar alone if this has no fractional bar associated with it.

135. Tolerance. A value fixing the limit of allowable error or departure from true performance or value. (See also basic tolerances.)

136. Trig Loop. The fixture through which the tip of the weight beam projects in usual construction, designed to restrict vertical angular motion of the weighbeam to designed limits.

137. Type. The term "type" shall be construed to mean a model or models of a particular measurement system, instrument, element, or a field standard that positively identifies the design. A specific type may vary in its measurement ranges, size, performance, and operating characteristics.

138. Type Evaluation. A process for the testing, examination, and/or evaluation of a type by a Participating Laboratory under the National Type Evaluation Program.

139. Underregistration. See overregistration and underregistration.
140. Unit Train. A unit train is defined as a number of contiguous cars carrying a single commodity from one consignor to one consignee. The number of cars is determined by agreement among consignor, consignee, and the operating railroad.
141. Unit Weight. One contained within the housing of an automatic-indicating scale and mechanically applied to and removed from the mechanism. The application of a unit weight will increase the range of automatic indication, normally in increments equal to the reading-face capacity.
142. User Requirement. A requirement dealing with the selection, installation, use, or maintenance of a weighing device. User requirements are primarily directed to the users of devices.
143. Usual and Customary. Commonly or ordinarily found in practice or in the normal course of events and in accordance with established practices.
144. Value of Minimum Graduated Interval. The value represented by the interval from the center of one graduation to the center of the succeeding graduation. Also, the increment between successive recorded values. (Also see graduated interval.)
145. Variable Division-Unit Scale. A scale so designed that the unit of weight of the scale division is selectable by the operator (e.g., gram, troy ounce, pennyweight).
146. Variable Division-Value Scale. A scale so designed that the value of the scale division, in the same unit of weight, increases at certain load values within the weighing range of the scale (e.g., 0 load to 5 pounds in 0.005-pound scale divisions, 5 pounds plus to 20 pounds in 0.010-pound scale divisions).
147. Vehicle Scale. A scale adapted to weighing highway, farm, or other large industrial vehicles (except railroad freight cars), loaded or unloaded.
148. Verification Scale Division, Value of (e). A value, expressed in units of weight and specified by the manufacturer of a device, by which the tolerance values and the accuracy class applicable to the device are determined. The verification scale division is applied to ungraduated devices and certain other devices used for weight classifying or weighing in predetermined amounts, and certain other Class I and II scales.

149. Weighbeam. An element comprising one or more bars, equipped with movable poises or means for applying counterpoise weights or both.
150. Weighbridge. In a large-capacity scale, the structural frame carried by the main bearings which supports the load-receiving element.
151. Weighing Element. That portion of a scale that supports the load-receiving element and transmits to the indicating element a signal or force resulting from the load applied to the load-receiving element.
152. Weighment. A single complete weighing operation.
153. Weight. (a) The force with which a mass is attracted toward the center of the earth by gravity. The true weight of an object is its weight as determined in a vacuum. The apparent weight in air of an object is its weight determined in air, and is less than the true weight by an amount equal to the true weight of the air displaced by the object, (b) an object, usually of metal, having a definite mass, that is designed for weighing or testing purposes, or as a counterpoise weight or a test weight.
154. Weight Ranges. Electrical or electro-mechanical elements incorporated in an automatic-indicating scale through the application of which the range of automatic indication of the scale is increased, normally in increments equal to the reading-face capacity.
155. Weight, Unit. See unit weight.
156. Zero-Load Balance. A correct weight indication or representation of zero when there is no load on the load-receiving element. (See also zero-load balance for an automatic-indicating scale, zero-load balance for a nonautomatic-indicating scale, zero-load balance for a recording scale.)
157. Zero-Load Balance for an Automatic-Indicating Scale. A condition in which the indicator is at rest at or oscillates through approximately equal arcs on either side of the zero graduation.

158. Zero-Load Balance for a Nonautomatic-Indicating Scale. A condition in which (a) the weighbeam is at rest at or oscillates through approximately equal arcs above and below the center of a trig loop, (b) the weighbeam or lever system is at rest at or oscillates through approximately equal arcs above and below a horizontal position or a position midway between limiting stops, or (c) the indicator of a balance indicator is at rest at or oscillates through approximately equal arcs on either side of the zero graduation.

159. Zero-Load Balance for a Recording Scale. A condition in which the scale will record a representation of zero-load.

160. Zero-Setting Mechanism. Means provided to attain a zero balance indication with no load on the load receiving element. Three types of these mechanisms are:

- a. Manual zero-setting mechanism. Nonautomatic means provided to attain a zero balance indication by the direct operation of a control.
- b. Semi-automatic zero-setting mechanism. Automatic means provided to attain a direct zero balance indication requiring a single initiation by an operator.
- c. Automatic zero setting-mechanism. Automatic means provided to maintain zero balance indication without the intervention of an operator.

161. Zone of Uncertainty. The zone between adjacent increments on a digital device in which the value of either of the adjacent increments may be displayed.